

CHAPTER 5

Global

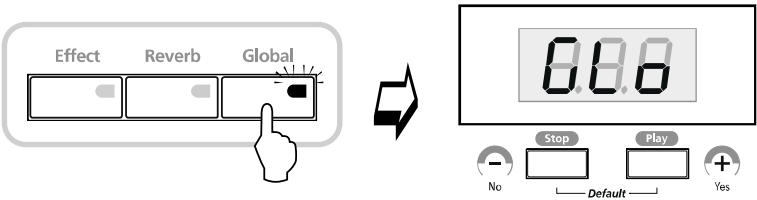
Global parameters affect the operation of instrument-wide behavior. This chapter will help you understand what each parameter does. Also, you learn how to initialize the entire system in Global mode. To find subject-oriented information, use the following list.

- ◀ Local.5-2
- ◀ Touch / Drum Map / Entry Value / Tuning. 5-2
- ◀ Dump / MIDI Scope / Reset. 5-4

Entering Global Mode

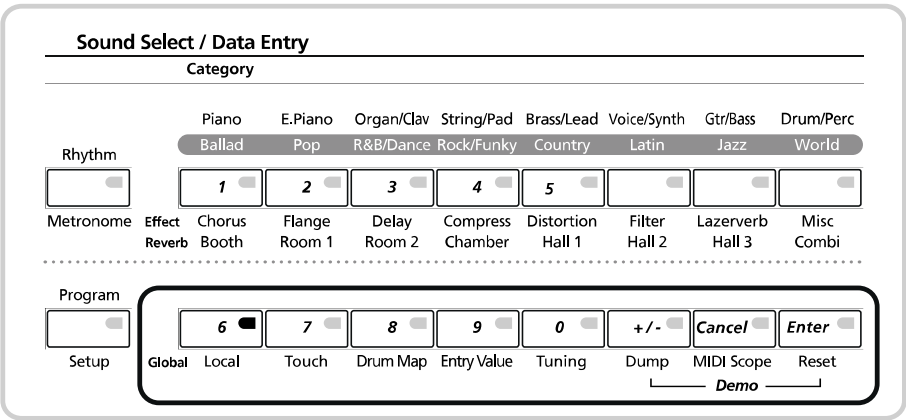
Press the [Global] button to enter Global mode.

After you enter Global mode, the display looks like < Figure 5-1 >.



< Figure 5-1 Entering Global Mode >

In Global mode, you can select each of 8 global parameters using the lower row of Sound Select buttons as labeled below them.

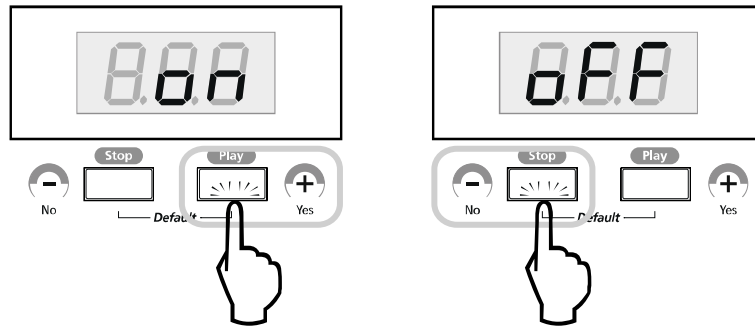


< Figure 5-2 Selecting Global Parameters >

Local

This parameter establishes (On) or breaks (Off) the internal link between the MIDI-generating components (keyboard and physical controllers) and the internal sound module. When you want to be able to play the SP2 from its own keyboard, set Local Control to On. When the SP2 is receiving MIDI from an external source, set Local Control to Off. Otherwise, MIDI looping (notes get doubled) might occur. This is particularly important when you're using the SP2 with a sequencer.

[+/Yes] and [-/No] buttons will turn on and off Local control. The term "Local" means connection between the internal sound generator and the triggering devices such as the keyboard part of your SP2. Generally, On is appropriate for standalone use and Off is used with a computer sequencer or external MIDI processor.



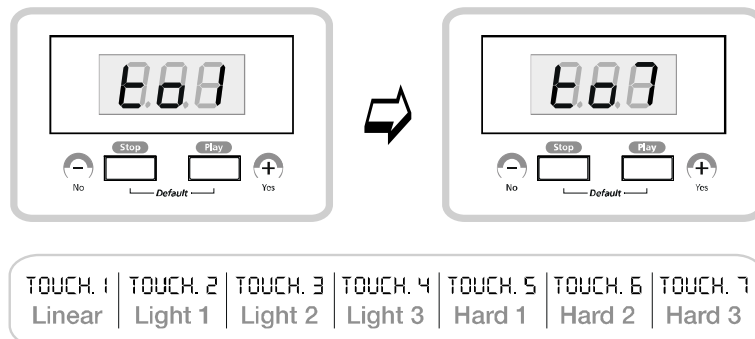
< Figure 5-3 >

Touch

This parameter determines how sensitively the keyboard responds to your playing. By default, a value of Linear is the standard, unaltered level of keyboard sensitivity. Values of Light1 - Light3 are for players who prefer a light touch. You can play more lightly and still get the same attack-velocity values with these settings. The sensitivity level increases as the numeric number suggests.

Values of Hard1 - Hard3 are for players who have a heavier touch. You should play harder to get the same attack-velocity values. Also, the numeric number suggests the sensitivity level. Linear is less sensitive than Light1 and more sensitive than Hard1.

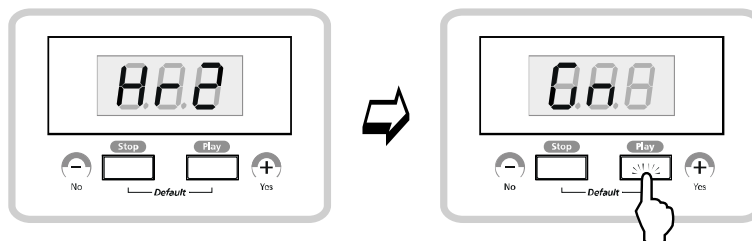
With [+/Yes] and [-/No] button, you can select one of those seven types of sensitivity level of your SP2's keyboard like < Figure 5-4 >.



< Figure 5-4 Selecting Velocity Sensitivity >

Drum Map

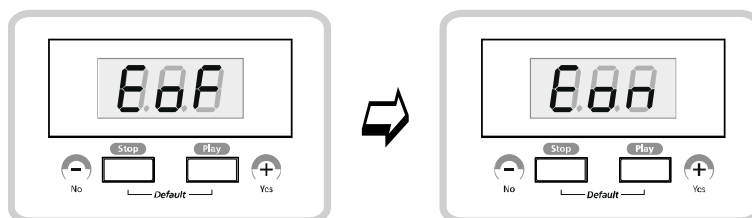
This parameter determines the layout of percussion timbres in drum programs (Unlike other programs, drums or percussion programs should consist various percussion instruments within a single patch). You can select either General MIDI style layout (GM) or Kurzweil style layout (KRZ) with [+ / Yes] and [- / No] button like < Figure 5-5 >. The default setting is KRZ.



< Figure 5-5 >

Entry Values

You can assign initial values for controllers if necessary. For example, when changing setups between songs at a gig, you want to specify initial settings for any controller such as effect wet / dry level or volume setting for each setup. You can activate this feature by setting the Entry Value parameter to ON. (See < Figure 5-6 >.) The default state is OFF. There are a few important points you need to understand about Entry Values.



< Figure 5-6 >

Crossing the Entry Value

Suppose that Knob A happens to be all the way to the left when you select a new setup and the entry value assigned to Knob A is 95. You don't want it to suddenly jump to the current value. Since the knob is all the way down (sending a MIDI Controller message with a value of 0), it would jump to a value close to 0. If Knob A controls effect wet/dry mix level, the moment you move the knob, the effect would suddenly disappear.

This is very common problem with generic MIDI controllers. To avoid this problem, the SP2 is designed so that once you set an entry value for a physical controller, it won't become active until you pass the point of the entry value. So, in the previous example, as you move Knob A up, nothing happens until you reach 95. At that point, the sliders begins to send MIDI controller message.

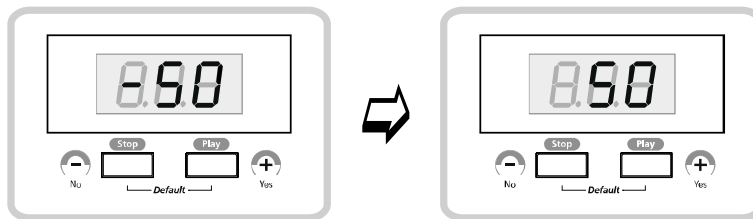
Avoid Extra Controller Motion

Now suppose you want to have a piano-and-strings setup with chorus effect, but you don't want to hear the effect at all when you select the setup. Instead, you want to bring it in later. To do this, you could set the entry value for Knob A in Zone 1 to 0.

Imagine that the knob is all the way to the left when you first call up the setup. Remember that the knob must go past the entry value before it becomes active. In this example the entry value is 0 and the current MIDI controller value sent by the knob is 0 (minimum). When you move the knob up, the MIDI controller value goes to 1, and therefore hasn't crossed the entry value, and therefore nothing happens as you continue to turn the knob. You'd have to turn the knob to the right slightly, then back to the left so that it goes to MIDI Controller value 0, then the next time you turn it to the right, the knob will be active. To avoid having to turn the knob right, left, and right again, set the entry value to a very low number other than 0, such as 5. The value is so low that you won't hear the effect, but as you turn the knob to the right the first time, it will go past value 5 and become active.

Tuning

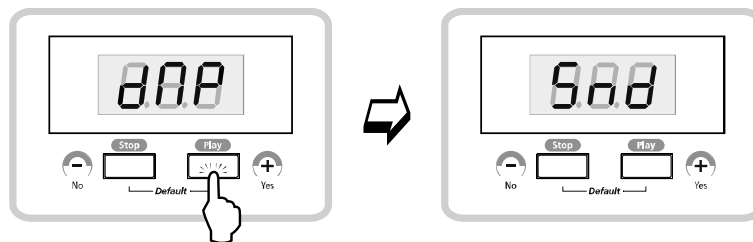
The SP2 is tuned to 440 Hz. You can tune the SP2 up or down to -50 (Ab) ~ 50 (A#) in one-cent increments. To recall the default setting, press [+ / Yes] and [- / No] button simultaneously. This can be useful if you are playing along with a recording, or playing with other acoustic instruments that can't be easily retuned. The default value is 0 cent.



< Figure 5-7 >

Dump

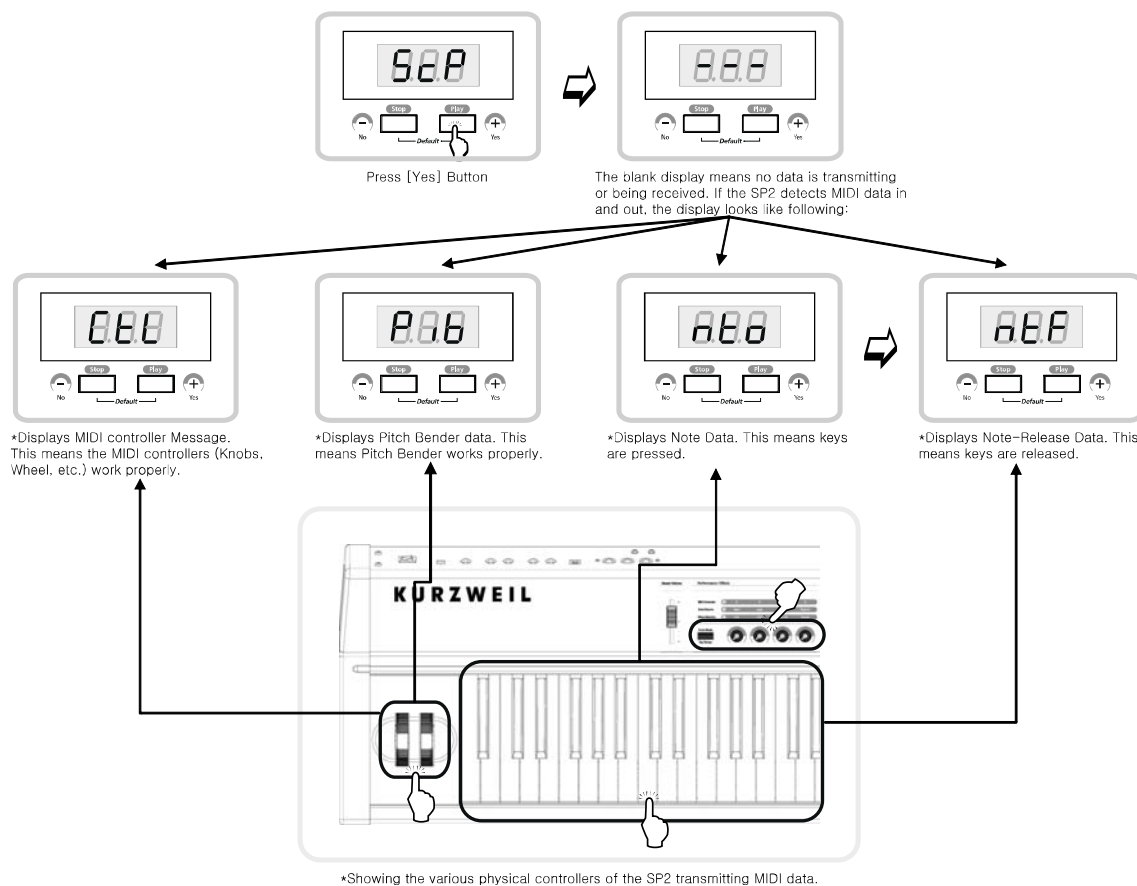
Use when you want to store all the data in memory externally as System Exclusive message. The data will be sent over a MIDI cable. Press [Dump] button and the display will show "dmp" (Dump) message. [+ / Yes] button will start transmitting and the display will show "Snd" (Send) message.



< Figure 5-8 >

MIDI Scope

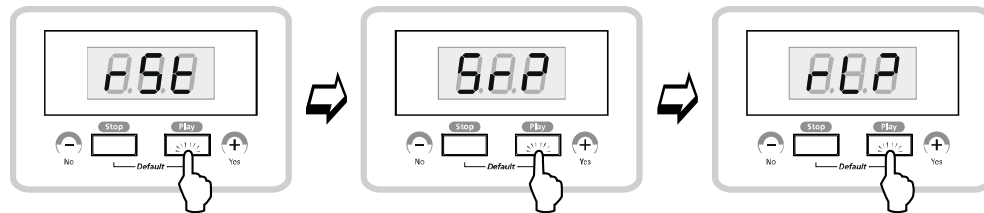
This small utility is used for monitoring MIDI data, either coming into the SP2 or being produced by the instrument itself. Whenever you play a key or controller or send and receive any MIDI data, the data show up on the display. You can monitor if the SP2 properly receives incoming MIDI data. When you select MIDI scope, the display will show "ScP" (scope) message. The [+ / Yes] button will clear the display. "Nte" means note message and "Ctl" means control message. This can be highly useful for diagnosing problems or monitoring MIDI data flow especially when the SP2 is transmitting MIDI control message.



< Figure 5-9 >

Reset

This will initialize the SP2. When you select [Reset], the display will show “Rst” (Reset). Press [+/Yes] once again, and the SP2 will ask you if you are sure. Press [+/Yes] button one more time and the you will see a prompt asking “rL?” (Really) to be sure for the last time. This will prevent you from executing a hard reset inadvertently, which erases all user-stored data. One more push of the [+/Yes] button will initialize the SP2.



< Figure 5-10 Resetting the SP2 >

CHAPTER 6

This chapter will help you understand how to upgrade the internal software of the SP2 as well as a few miscellaneous menus. Use the following list to find specific information more quickly.

◀ Software Upgrades.	6-1
◀ Miscellaneous Menus.	6-2

Software Upgrades

You can get software upgrades for your SP2 from Kurzweil's FTP website or from your Kurzweil dealer. Because the software upgrades are encoded as one or more standard MIDI files containing MIDI Sysex, you need a computer (Mac or Windows PC) with a MIDI interface and sequencer to transfer the software to your SP2. Kurzweil's FTP website address is:

<ftp://ftp.kurzweilmusicsystems.com/pub>

Also, our download page will answer any questions you might have about how to download files and get them into your SP2.

<http://www.kurzweilmusicsystems.com/downloads.html>

The software upgrades filenames are in the format SP2VVV.MID, where VVV is the version number. The filename with "COMB" in it contains the combination of software upgrades and sound objects.

Setting Up For a Software Upgrade

Connect a MIDI cable from the MIDI Out of the MIDI interface to the MIDI In of the SP2.

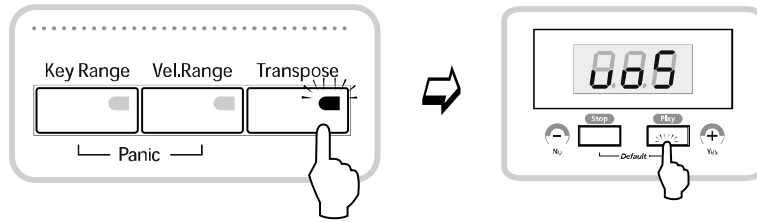
☑NOTE You need to set up your computer to transmit MIDI data properly. Follow the procedure described below. It is very easy.

1. Open Control Panel
2. Open the Sounds and Audio Devices Properties
3. Click the Audio tab
4. Set the Default device for MIDI music playback to the MIDI interface connected to the SP2.
5. Close the dialog box and click OK to complete the setting.

☑NOTE The following instructions are for PC only

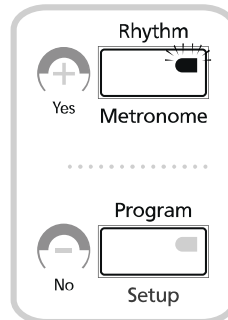
Installing Software Upgrades

1. After powering on, when three dots on the display are blinking, press the [Transpose] button.



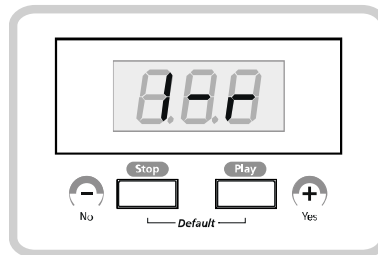
< Figure 6-1 >

2. The display will show “uOS” (Update OS) message.
3. If you want to move to another menu, use [+ /Yes] or [- /No] button.
4. From now on, pressing [Metronome] button means “Yes” and pressing [program] button means “No”.



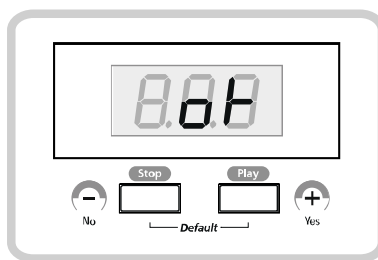
< Figure 6-2 >

5. Thus, if you decide to install software upgrades, press [Metronome] button while the display is showing “uOS”.
6. Then, the display will show “u.O.S.” that means the SP2 is now waiting for the data transmission.
7. Start playing the MIDI file containing new software from the sequencer, or a MIDI file player such as Windows Media Player.
8. If the SP2 is receiving the MIDI data correctly, the display will shows “1-r” like < Figure 6-3 >.



< Figure 6-3 >

9. If you start the MIDI file player and still the display shows “u.O.S.”, it means that the data is not being sent to the SP2 properly.
10. In this case, make sure the MIDI connection and the MIDI file player setting from the computer is correct one more time.
11. If everything works well, the loading may take up to 18 minutes. After the software loading is completed, the display will show “OK” message which means that the software upgrade has been successfully done.

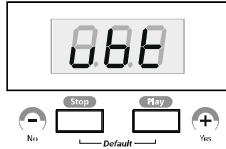


< Figure 6-4 The “OK” message >

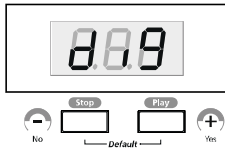
12. Turn power off then on.
13. Now, the software upgrade is completed successfully and your SP2 will start with the new operating system and / or features. Please, refer to the Read Me File included in the software upgrades.

Miscellaneous Menus

◀ As described above, when the display shows “uOS”, you can select more menu options including diagnostic with [Up] and [Down] buttons.



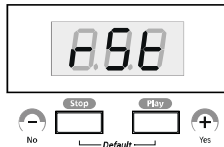
1. “ubt” – Updating Boot Block: This menu is for updating boot block. The boot block is a tiny piece of software with information that is needed to start the SP2’s system software. The procedure is same as software upgrades. Usually, customers don’t need to update boot block themselves.



2. “dig” – Diagnostics: This menu is for diagnostics. You can choose from a series of diagnostic tests for proper operation of the important components inside your SP2’s hardware including Flash ROM, RAM, sound generator, Delay RAM, etc.



3. “eng” – Engine: This menu executes the engine software which is same as you normally start your SP2.



4. “rSt” – Reset: This menu executes the system initialization. Usually, customers don’t need to use this menu.

CHAPTER 7

Why Use Effects?

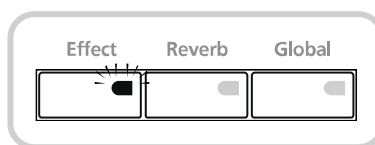
You can enhance the SP2's sound even more with the internal effects. With reverbs, you can add depth and reality to the SP2's sound. Also, you can enjoy a variety of modulation effects which can dramatically change the timbre of internal sounds. By adding effects such as reverb or delay, you can make your SP2 sound like a grand piano in a concert hall. Exploring the sonic potential of your SP2 will be fun and most of all, your audience will be impressed with the full and rich sound of your instrument. For quick reference, use the following list.

◀ Description	7-1
◀ Controlling Effect	7-1
◀ Routing Effect	7-2
◀ Selecting Effect	7-2
◀ Wet / Dry Mix	7-3
◀ Bypassing Effect	7-3

Description

The SP2's digital multi-effects consist two independent effect blocks called Effect and Reverb. You can determine which effect block each program or setup goes thorough. We call it Signal Routing.

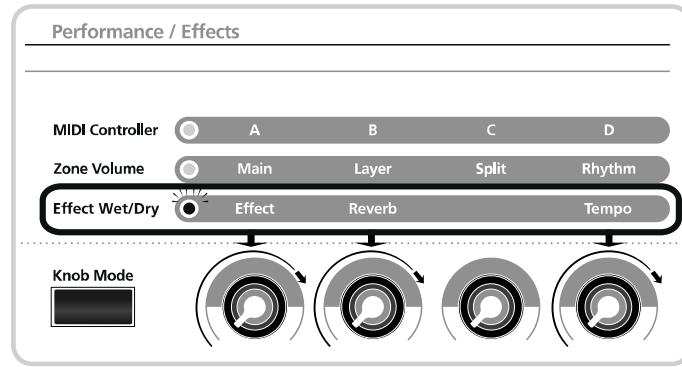
The SP2 has 64 effect presets. All of them are available for Effect block. For Reverb block, 30 reverbs are available (these reverbs are also available for Effect block). Thus, most programs are routed to Effect block by default.



< Figure 7-1 Effect, Reverb block button >

Controlling Effect

Basically, most programs and setups have at least one assigned effect. The LEDs in the Effect and the Reverb block buttons come on and go off according to the settings for each program or setup. Activating one of those blocks will turn on the LED in the corresponding button. Of course, you can activate both blocks if needed. In this case, both LEDs are turned on. You can assign knobs to control the wet/dry mix of each block in the Performance / Edit region.



< Figure 7-2 Effect Wet/Dry >

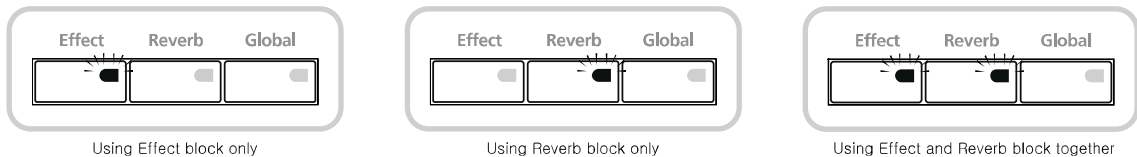
MIDI Controller 93 and MIDI Controller 91 are assigned to control the wet/dry mix of Effect and Reverb block. The value of 0 means completely dry signal with no effect processing at all. The value of 127 is the opposite - processed signal only.

- MIDI91 / REVERB
- MIDI93 / EFFECT

Routing Effect

Routing Effects is determining which block the audio signal will pass through. Literally, the term “Routing” means selecting paths in the SP2’s effect engine along which to send the audio signal generated by the sound engine. You can also make the audio signal temporarily bypass the effect engine without reprogramming the SP2. < Figure 7-3 >

When you select a program or setup, the LEDs in the Effect and Global buttons will indicate the current effect routing.



< Figure 7-3 Routing Effect >

Selecting Effect

1. Press [Effect] button
2. Make sure the LED in the [Edit] button is blinking, which means that you are in the Effect Editing mode.
3. Select the desired effect type from the category. The category includes chorus, flanger, delay, compressor, distortion, filter, laserverb, misc. (rotary speaker, enhancer, simple motion, etc.) After you make selection, choose the desire preset with Sound Select button.
4. Unless you store changes, the effect assignment reverts to its preset state as soon as you you select another program or setup. If you change the effect routing for program or setup and preserve the changed setting, press [Store] button
5. The display will ask you to to be sure. Press [+ / Yes] button to confirm.

Wet / Dry Mix

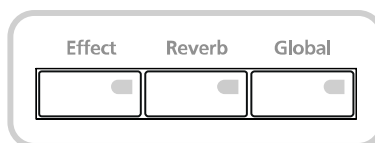
Most programs and setups are routed to Effect block by default. The audio signal processed by the Effect block can be routed to Reverb block before being sent to the main output.

The [Effect] and [Reverb] buttons in the Performance / Edit region of the front panel enables the “sends” to each block. When the button's LEDs are lit, control the send amount with knobs. The numeric value for each block means the following:

- The Effect controls how much of Effect block's effect gets applied to the dry signal coming from the sound engine.
- The Reverb controls how much of the processed signal coming from Effect block goes to Reverb block and gets Reverb block's effect applied to it.

Bypassing Effect

Sometimes, you need to mute all the effects. For example, when you're in the studio, your recording engineers may want to use their own external effects. You can easily silence all your effects and / or reverb temporarily without making any lasting changes to the programs or setups you're playing. Just deactivate each block with the corresponding button. The LEDs are turned off when they are deactivated. In this case, the effect engine is still active although the effects are muted. The audio signal simply bypasses the effect engine.



< Figure 7-4 Effect Bypass >

CHAPTER 8

Tutorials

This chapter provides a few programming examples for ensemble or solo performance situations, which users can easily follow step-by-step by themselves. Create some setups with two or more programs using layering, splitting and velocity switching feature. With the internal rhythm patterns running, you can even run an entire show alone which would need multiple players. While enjoying the tutorials, you will learn the advanced features of the SP2 quickly.

Programming with Layers

The most often used layering techniques are mixing two sounds (Piano with Strings or Pads) each with fast attack and slow attack for richer and punchier sounds, or layering a few similar sounding programs (Brasses, Strings, Analog Synths, etc.) to fatten the sounds.

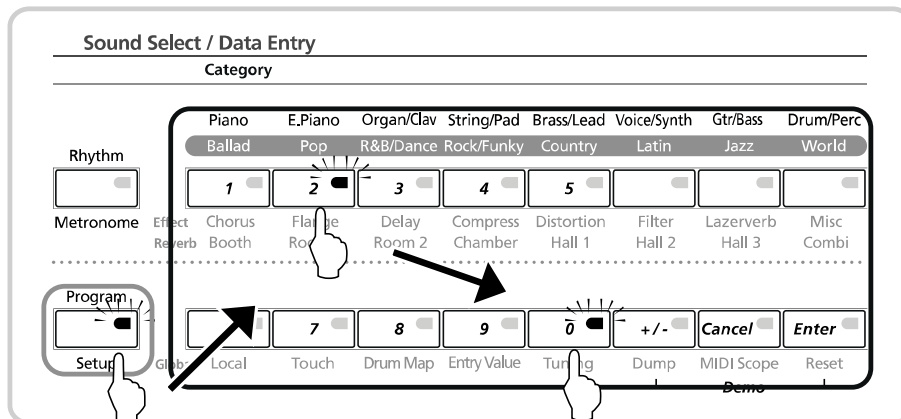
- Layering in Program mode

The program mode is automatically selected when power is turned on. In program mode, you can add another sound to the currently selected sound almost instantly without entering Setup mode. It is very useful when you are on stage because with a few button presses, you can easily create a layer without any actual editing through the display. We'll show you how to do this. Follow the tutorials below a couple of times and you will get the idea quickly.

Creating New Sounds with Layering

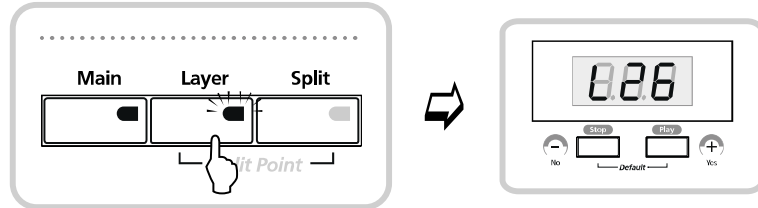
We are going to start with an existing electronic piano sound and layer it with vibes to create a new electric piano sound suitable for ballad tunes.

1. In Program mode, select n13 (Digital E.Piano)



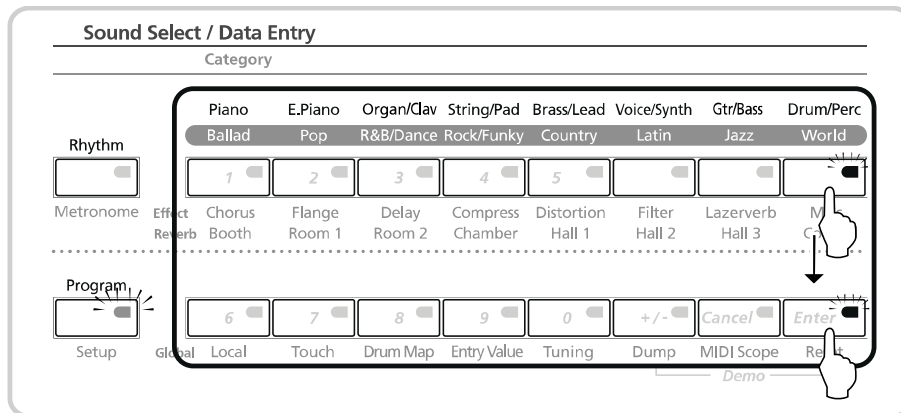
< Figure 8-1 >

2. Press [Layer] button located on the left side of the display. This will change the LED on the [Program] button from red to amber and “L26” will appear on the display. The color change of LED means that the SP2 is in Editing mode and “L26” indicates that program number 26 is (L)ayered.

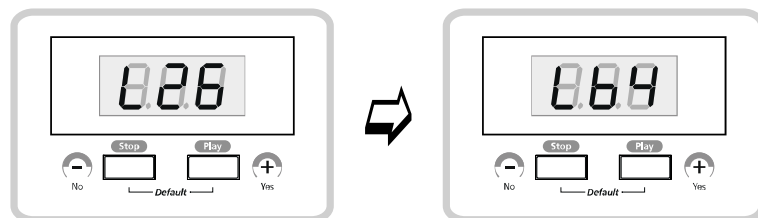


< Figure 8-2 >

3. Press [Drum/Perc] button in the category region and press [Enter] button. The “L26” on the display will change to “L64” (Vibes).

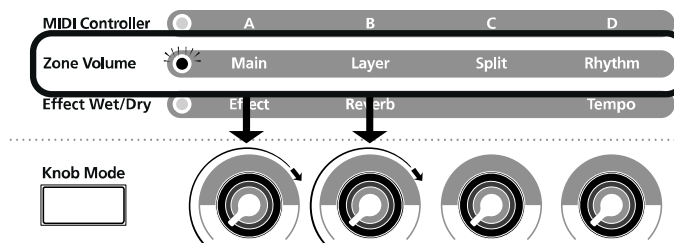


< Figure 8-3 >



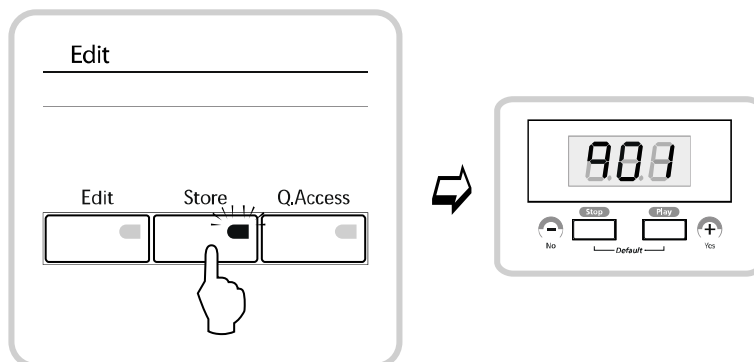
< Figure 8-4 >

4. Select Zone Volume mode with [Knob Mode] button. Use knob 1-2 to adjust the volume level of each sound. Set Main volume level to 110 and Layer volume level to 100.



< Figure 8-5 >

5. Press [Store] button in the Edit region and press [Yes] button below the display. The SP2 will ask you once more to be sure. One more press of [Yes] button will complete the saving procedure and the display will show "q01" indicating the slot number you just stored your program in. You can select one of the stored programs with [Q.Access] button at any time.



< Figure 8-6 >

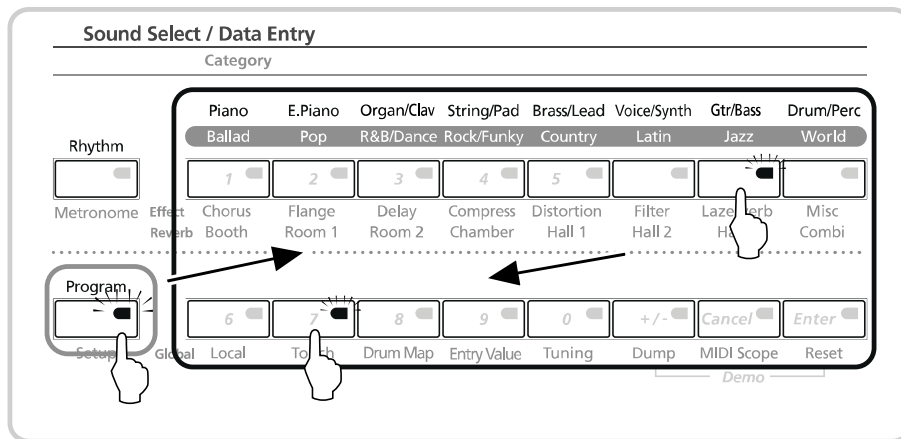
Splitting in Program mode

When you need two sounds on different parts of the keyboard, splitting comes in handy. For example, if you want to play a flute melody part with your right hand while playing a piano accompaniment part with your left hand. Layering is playing two sounds on the same part of the keyboard and splitting is playing two sounds on different parts of the keyboard.

Creating New Sounds with Layering and Splitting

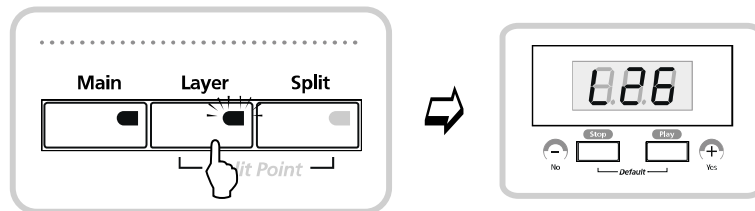
We are going to create a sound which combines guitar sound in the upper register and bass sound in the lower register of the keyboard.

1. In Program mode, select n50 (Chorus Guitar)



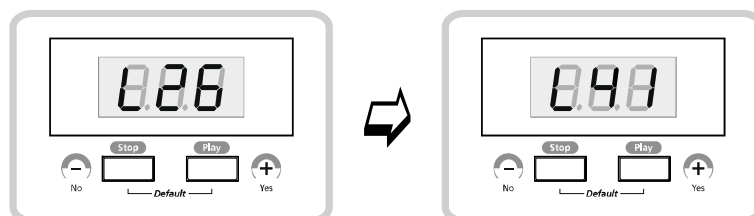
< Figure 8-7 >

2. Press [Layer] button located on the left side of the display. This will change the LED on [Program] button from red to amber and "L50" will appear on the display. The color change of LED means that the SP2 is in Editing mode and "L26" indicates that program number 50 is (L)ayered.



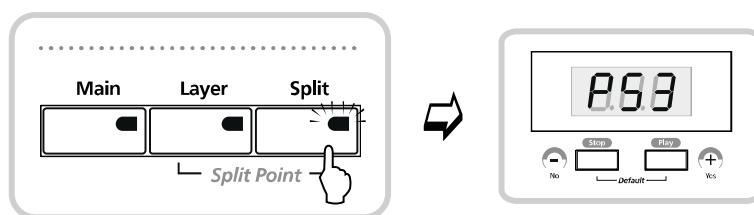
< Figure 8-8 >

3. Press [Drum/Perc] button in the category region and press [6] button below. Then “L50” on the display will change to “L41” (Scatman).



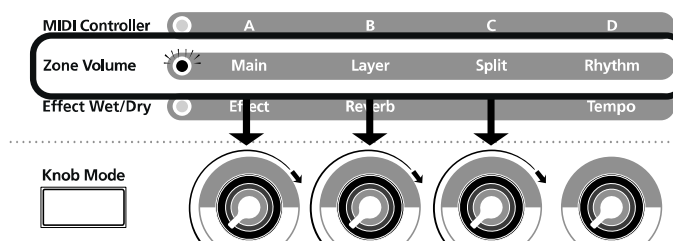
< Figure 8-9 >

4. Press [Split] button next to [Layer] button. The display will show “p53” (Pd Clav o Bass). Now you have a bass sound assigned to the lower register of the keyboard.



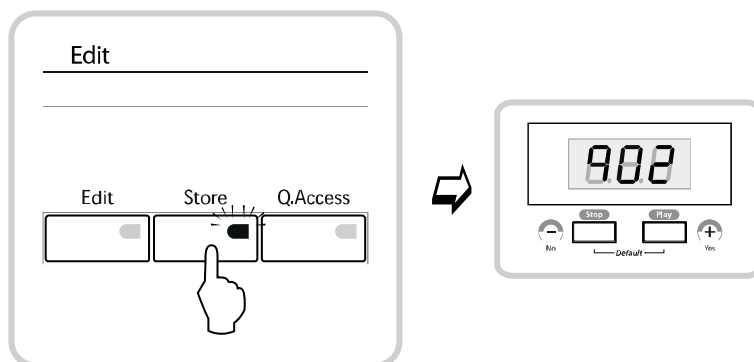
< Figure 8-10 >

5. Select Zone Volume mode with [Knob Mode] button. Use knob 1-3 to adjust the volume level of each sound. Set Main volume level to 110, Layer volume level to 90 and Split volume level to 120.



< Figure 8-11 >

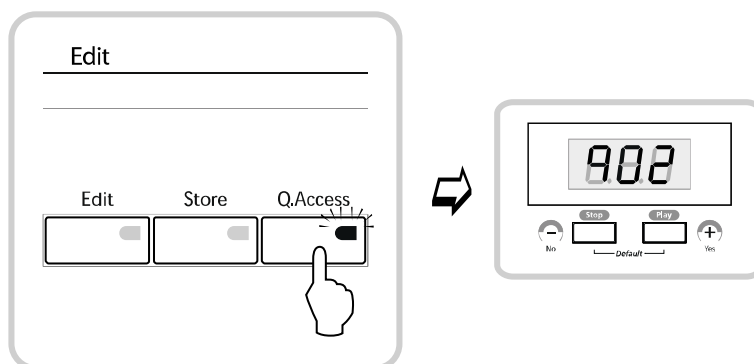
6. Press [Store] button in the Edit region and press [Yes] button below the display. The SP2 will ask you once more to be sure. One more press of [Yes] button will complete the saving procedure and the display will show “q01” indicating the slot number you just stored your program in. You can select one of the stored programs with [Q.Access] button at any time.



< Figure 8-12 >

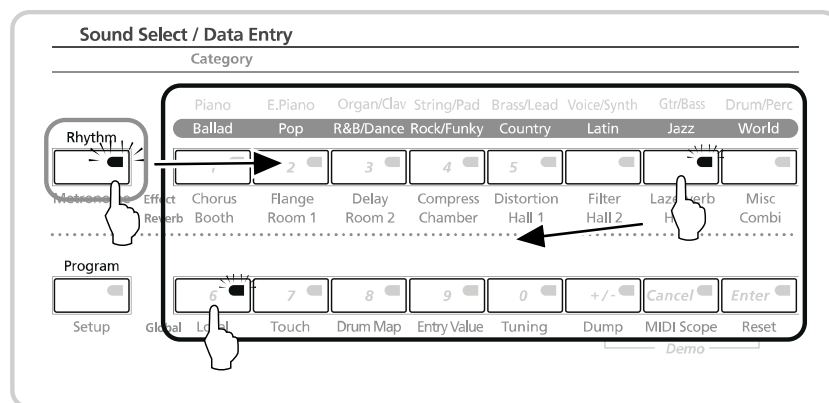
Using Layered Sounds with Rhythm Patterns

1. Press [Q.Access] in the Edit region and press [2] button to load the sound that you've just stored in the previous example.



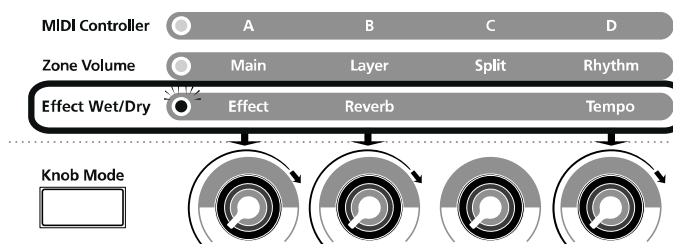
< Figure 8-13 >

- Press [Rhythm] button below the display. Press [Jazz] button in the Category region and then press [6] button. The display will indicate "r49" (Jazz Rhythm 1). Pressing [Yes] button below the display will start the selected rhythm pattern..



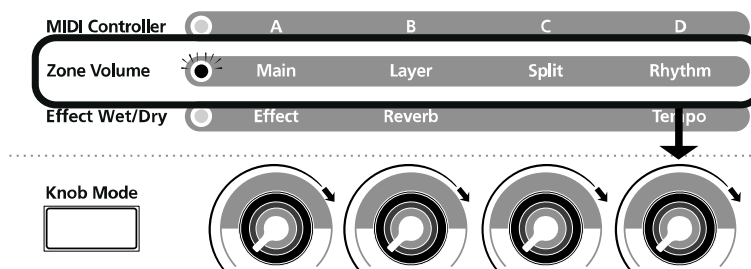
< Figure 8-14 >

- Select Effect wet/Dry mode with [Knob Mode] button. Adjust the tempo of the rhythm pattern with knob 4.



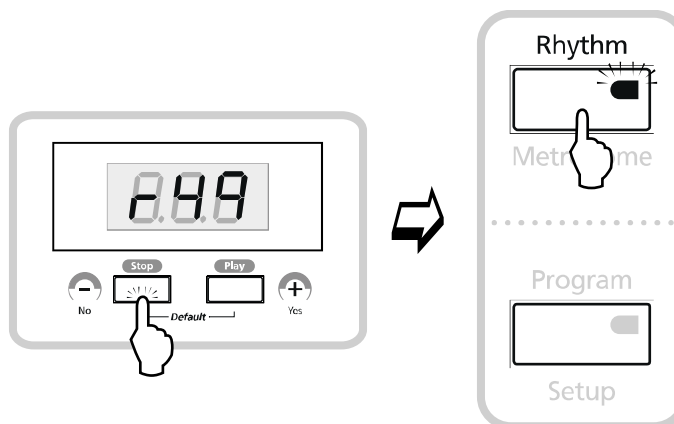
< Figure 8-15 >

- Select Zone Volume mode with [Knob Mode] button. Adjust the volume level of the rhythm pattern with knob 4. For this example, set it to 100.



< Figure 8-16 >

5. Pressing [No] button below the display will stop the rhythm pattern playing. With one more press of [Rhythm] button, you will return to Program mode.



< Figure 8-17 >

✓**NOTE** When editing, always try to listen to the sounds closely. Also, comparing the edited sounds to the similar sounds in commercial songs is a good way to be familiar with programming more quickly.

CHAPTER 9

Troubleshooting / FAQ (Frequently Asked Questions)

Maintenance

Aside from normal care in handling and use, your Stage Piano requires no regular maintenance. Do not use abrasives or solvents as they may damage the unit's exterior such as paint, markings, info strip and display lens, etc. Clean with a soft cloth dampened with water.

Unlike other instruments, the SP2 uses nonvolatile flash memory for storage, which needs no power or batteries to retain information. So, unplug the power adapter from the wall if your SP2 will be off for a long period of time.

Common Problems

Below is a list of the most commonly encountered problems and diagnoses for each.

Power Problems

☑NOTE The normal power-up sequence should follow:

1. The display and the LEDs of your SP2 are turned on and off in a certain order for a while.
2. The initial display appears.

If nothing at all happens when you turn on the power, check these items:

1. Power module not plugged securely in wall outlet.
2. Cord from power module not fully plugged into the SP2.
3. Input voltage rating of power module does not match your power system.
4. Incorrect or defective power module.
5. Dead wall outlet, power strip, or extension cord.

If all of the above are checked okay, yet you still don't see normal operation, check these items:

1. Input voltage rating of power module does not match your power system.
2. Incorrect or defective power module. For information about the power module specifications, see page A-1. Voltage or current rating less than specified will cause unusual or intermittent operation.
3. Power system voltage abnormally low. Try a different, unused outlet.
4. Intermittent operation can be caused by a replacement power module with the wrong size plug. The correct plug fits snugly into the jack, and doesn't wobble.

Audio Problems

Before diagnosing audio problems, make the SP2 play the demo songs. If there is no sound from your SP2, check the following:

1. Set the master volume slider all the way down. Gradually move the slider upwards.
2. Check the position of the MIDI controller foot pedal if connected.
3. Volume control on audio system or mixer turned down.
4. Signal source selection on audio system or mixer is incorrect.
5. Audio cables not securely plugged in at both ends.
6. Incorrect type of audio cable.

If you can hear sound but it is too low, look into these possibilities.

1. Audio cables not securely plugged in at both ends.
2. Low voltage output from power module. Check Power Problems above.
3. A received MIDI volume or Expression message has specified a low volume.
4. Check the position of the MIDI controller foot pedal if connected.
5. Input to audio system is set for low impedance instead of high impedance.
6. Input trim to audio system or mixer is set too low.

MIDI Problems

If you connected your SP2 to a computer running sequencer application, and are experiencing problems, check these:

1. MIDI cables not securely plugged in at both ends.
2. Wrong MIDI connections. To send MIDI, plug into the SP2's MIDI Out connector and the external device's MIDI In connector.
3. Defective MIDI cable.
4. Check if the Global parameter "Local" is on. Setting this parameter to ON makes the SP2 send MIDI information only to itself. The Local parameter must be set to OFF when you work with an external sequencer. For standalone use, set Local to ON; otherwise you won't hear any sounds from your SP2.

If you are trying to control the SP2 from an external MIDI device such as a drum machine, and the SP2 does not respond to incoming MIDI information properly, check following items:

1. Set external device to transmit MIDI information on Channel 1.
2. MIDI cables not securely plugged in at both ends.
3. Wrong MIDI connections. To receive MIDI, plug into the SP2's MIDI In connector and the external device's MIDI Out connector.

Prerecorded General MIDI (or GS, or XG) sequences may not play correctly through the SP2 when played from a sequencer application because the SP2 is "NOT" a GM (General MIDI) compatible sound module. The differences between the SP2 and a typical General MIDI module are like following:

1. Most of the sound program numbers are different.
2. Effects setting messages are different.
3. The SP2's drum channel is not fixed to MIDI Channel 10.

Switch Pedal Problems

If you are having problems with switch pedal, check these:

1. Be sure the pedal is plugged into the correct jack which has printed label “SW pedal” above it. Be cautious. Plugging into the wrong jack might cause damage to your instrument.
2. If Sostenuito is stuck, be sure the pedal is plugged in before switching on the power. Turn power off then on if necessary.
3. If the pedal is acting backward (active when up instead of down), turn power off then on. Be sure the pedal is plugged in before turning power on and don’t use the pedal until after the unit has completed its power up sequence.

Control Pedal Problems

If you are having problems making a control pedal work properly, check these:

1. Be sure the pedal is plugged into the correct jack which has printed label “CC pedal” above it.
2. Do NOT use MONO Volume Pedal! This will cause system malfunctioning or damage to your instrument.
3. If the pedal works backward, operates very abruptly, or not at all, it’s most likely a wiring problem. See below for more information.
4. When using adapter cables to adapt a pedal with two mono cables, make sure that the Y adapter is a stereo splitter type.

Kurzweil Service Centers

To locate the nearest Kurzweil Service Center for further assistance, please visit the following link.

<http://www.kurzweilmusicsystems.com/>

Appendix A

Specifications

Specifications are subject to change without notice

Physical Specification

	SP2	SP2X
Dimension(mm)	1247(L) X 337.5(W) X 126(H)	1412(L) X 337.5(W) X 126(H)
Weight	13 kg	22 kg

Electrical Specification

Voltage and Frequency Ranges

	120 VAC Adapter Model PM0023A	230 VAC Adapter Model PM0024A
Safe voltage range	100–125 Volts RMS	200–230 Volts RMS
Safe frequency range	58–65 Hz	48–65 Hz

Power Consumption

Voltage Level	Power Consumption
120 VAC	0.35 Amps
230 VAC	0.13 Amps

Environmental Specifications

	Minimum		Maximum	
Temperature Range for operation	40 F	5 C	104 F	40 C
Temperature Range for storage	13 F-	25 C	185 F	85 C
Humidity Range for operation	5%		95% (non-condensing)	
Humidity Range for storage	5%		95% (non-condensing)	

Appendix A

SP2 Specifications

Audio Specifications

Line-Level Left and Right Analog Audio Outputs

Connectors	Balanced outputs using two 1/4-inch stereo (tip-ring-sleeve) phone plugs and shielded twisted pair cable or unbalanced using two 1/4-inch mono (tip-ring) phone plugs and coaxial cable.
Impedance	400 ohm, Balanced, nominal
	200 ohm, Unbalanced, nominal
Maximum output level	20.8 dBu (8.5 Volts RMS) Balanced, high-impedance load
	14.7 dBu (4.2 Volts RMS) Unbalanced, high-impedance load
Frequency Response	20Hz-20kHz +/- 0.6 dB
Idle channel noise	Less than -115 dBA, balanced, relative to full-scale signal
Dynamic Range	Greater than 112 dBA, balanced, using -60 dBFS signal
Stereo Channel Separation	96 dB

Headphone Output

Output impedance	47 Ohm, nominal
Maximum output level	-4 dBu (0.5 Volts RMS) with 32 Ohm load

Parameter Reference

Parameter Group	Subgroup (if any)	Parameter	Range of Values	Default
Key Range		Lo	C-1-G 9	G#3(Ab3)
		Hi	C-1-G 9	G 9
		Note Map	Linear	Linear
Transposition		Transpose	-24 to 24	0
Velocity		Vel Min	1-127	1
		Vel Max	1-127	127
Continuous controllers	Wheel 1 Up/Down		2 Semitone	Wheel 1 Up/Down Ctrl Num : Pitch Up
These controllers all have the same three Parameters, called the Basic Parameter Group. Usually the same, of Ctrl Num; its value varies for each controller	Wheel 2	Exit Value	None, 0-127 (default None)	Wheel 2 Ctrl Num: Mod Wheel
	Knob A			Ctrl Num : 6
	Knob B			Ctrl Num : 13
	Knob C			Ctrl Num : 22
	Knob D			Ctrl Num : 23
	Pedal 1			Ctrl Num : 11

MIDI Implementation Chart

Model: Kurzweil SP2

Manufacturer:

Kurzweil

Digital Synthesizers

Date: 2007.5.25

Version 1.0

Function	Transmitted	Recognized	Remarks
Basic Channel	Default	1	1
	Changed	X	1 - 16
Mode	Default	Multi*	Multi*
	Messages	Any	Modes 1
	Altered	X	
Note Number	0-127	0-127	key range
	True Voice	1-128	1-128 C 0-C 8
Velocity	Note ON	O	O
	Note OFF	O	O
After Touch	Keys	X	O
	Channels	X	O
Pitch Bender		O	O
Control Change**	0, 32	O	O bank select
	1	O	O mod wheel
	2	O	O breath controller
	4	O	O foot controller
	6, 38	O	O data entry
	7	O	O volume
	10	O	O pan
	11	O	O expression
	64	O	O sustain pedal
	66	O	O sostenuto pedal
	67	O	O soft pedal
	91	O	O Reverb Wet/Dry
	93	O	O Effect Wet/Dry
	96	O	O data increment
	97	O	O data decrement
	98, 99	O	O non-registered param num
	100, 101	O	O registered param num
	120	O	O all sound off
	121	O	O reset all controllers
Program Change		1-64	1-64
	True #	1-64	1-64
System Exclusive		O	O
Aux Messages	Local Control	X	O
	All Notes Off	O	O
	Reset	X	X

Mode 1: Omni On, Poly
Mode 3: Omni Off, Poly

Mode 2: Omni On, Mono
Mode 4: Omni Off, Mono

O = yes
X = no

Appendix B

SP2 Programs and Controller Assignments

The following list describes the physical controller assignments for each program and setup. Because they are all realtime controllers, you can easily put expressiveness and variety in your performance with them. They are also very useful for sequencing applications.

✓NOTE

When knobs are in MIDI controller mode, the MIDI controller assignments for Knob A-D and the mod wheel are fixed to the factory setting. In program or setup mode, the presets have their own MIDI controller assignments

Factory Setting

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
FootSW 1	MIDI 64 Sustain
C.C Ped	MIDI 11 Expression
Mwheel	MIDI 1
Mpress	MIDI 33

01 Stereo Grand

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

02 Classic Grand

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

03 Dynamic grand

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

04 Concert Grand

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

05 Yearning

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

06 Piano for layers

Knob A	Lopass Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	Strings Mute
Mwheel	Lopass Freq

Appendix B**SP2 Program and Effect List**

07 Hard Rock Piano

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

13 Digital E Piano

Knob A	Timbre
Knob B	MIDI 13
Knob C	Layer Enable
Knob D	MIDI 24
Mwheel	Tremolo Depth

08 Rag Time Piano

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

14 FantAsmAtron

Knob A	Timbre
Knob B	Timbre
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

09 Studio Rhds

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

15 90's FM Ballad

Knob A	Timbre
Knob B	Timbre
Knob C	MIDI 23
Knob D	Layer Enable
Mwheel	Vibrato

10 Fagen Phaser

Knob A	Lopass Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

16 Big Red Wurly

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	Layer Enable
Mwheel	Tremolo Depth

11 Old Sly Rhds

Knob A	Lopass Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

17 Pipe 16'8,reed

Knob A	Timbre
Knob B	Layer Enable
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Amp

12 Dyno My E Pno

Knob A	Lopass Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

18 Orgiano

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

19 Pipe Organ

Knob A	Layer Xfade
Knob B	Layer Xfade
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato

25 Film String

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

20 Ballad of 3 Bar

Knob A	Perc Xfade
Knob B	Bass Cut
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Rotary

26 Touch Strings

Knob A	Attack Depth
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Lowpas Freq

21 Prog Rocker's B

Knob A	Perc Xfade
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Rotary

27 Fast Strings

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

22 Clav Classic

Knob A	Timbre
Knob B	Layer Enable
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

28 Octave Strings 2

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	Layer Enable
Mwheel	Layer Switch

23 Dual Wah Clav

Knob A	Bandpass Wid
Knob B	Bandpass Freq
Knob C	Release Enable
Knob D	MIDI 24
Mwheel	Vibrato

29 Kupiter

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

24 Harpsichord

Knob A	Notch Freq
Knob B	Layer Enable
Knob C	Amp Depth
Knob D	MIDI 24
Mwheel	Decay Depth

30 Orch Pad

Knob A	Lowpas Freq
Knob B	Layer Enable
Knob C	Attack rate
Knob D	MIDI 24
Mwheel	MIDI 1

Appendix B**SP2 Program and Effect List**

31 U Say Tomita...

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo Depth

37 Indy lead

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

32 Spider's Web

Knob A	Timbre
Knob B	Timbre
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

38 Alazawi

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

33 Williams Brass

Knob A	Timbre
Knob B	Timbre
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

39 Hybrid Pan

Knob A	Layer xfade
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

34 Synth Brass

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

40 Old lead

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

35 Brass Section

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

41 Scatman

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

36 saxes X trumpets

Knob A	Layer Swtich
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

42 Bright Voices

Knob A	Timbre
Knob B	Attack
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

43 Doo >< Daa

Knob A	Timbre
Knob B	xFade
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

49 Acoustic Guitar

Knob A	Timbre
Knob B	Timbre
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo

44 The Croons

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

50 Chorus Elec Gtr

Knob A	Notch Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo

45 Eurythm

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

51 Lead Rock Gtr

Knob A	Dist Depth
Knob B	Layer Swtich
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

46 FLG Strings

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

52 Jazzy Frets

Knob A	Attack
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

47 Solar Lead

Knob A	Lowpas Freq
Knob B	Renonace
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Vibrato Depth

53 Round and Wound

Knob A	Lowpas Freq
Knob B	AMP ENV CTL
Knob C	MIDI 23
Knob D	Layer Swtich
Mwheel	Vibrato Depth

48 Attack Stack

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Pitch Shift

54 Two Finger Bass

Knob A	Lowpas Freq
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	Layer Swtich
Mwheel	Vibrato Depth

Appendix B

SP2 Program and Effect List

55 Slap Bass

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
FootSW 1	Layer Swtich
Mwheel	Vibrato Depth

56 Upright Bass

Knob A	Timbre
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	Layer Swtich
Mwheel	MIDI 1

57 Studio Drums 1+2

Knob A	Lowpass Filter
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

58 Radio Kings/Rods

Knob A	Lowpass Filter
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

59 Dirt/Triphop Kit

Knob A	Lowpas Freq
Knob B	Renonance
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

60 Electro kit

Knob A	Lowpas Freq
Knob B	Pitch Shift
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	MIDI 1

61 Virtuoso Perc

Knob A	Pitch Shift
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	AmpEnv CTL

62 Rhythm Maker

Knob A	Pitch Shift
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	AmpEnv CTL

63 Dual Marimba

Knob A	MIDI 6
Knob B	MIDI 13
Knob C	MIDI 23
Knob D	MIDI 24
FootSW 1	Layer Enable
Mwheel	Vibrato Depth

64 Vibes

Knob A	AmpEnv CTL
Knob B	Vibrato
Knob C	MIDI 23
Knob D	MIDI 24
Mwheel	Tremolo

SP2 Effects and Reverbs

Effect

	1	2	3	4	5	6	7	8
Chorus	1 Stereo Chorus1	2 Stereo Chorus2	3 Basic Chorus	4 Chorus Comeback	5 Everyday Chorus	6 Thick Chorus	7 Chorusier	8 Rock Chorus
Flange	9 Sweet Flange	10 Big Slow Flange	11 Throaty Flange	12 Squeeze Flange	13 Simply Flange	14 Wetlip Flange	15 Flange Delay	16 Flange Booth
Delay	17 Complex Echo	18 Stereo Echoes	19 4-Tap Delay	20 8-Tap Delay	21 Spectral 4-Tap	22 Astral Taps	23 BasicChorusDelay	24 Chorus PanDelay
Compressor	25 HKCompressor 3:1	26 DrumKompess 5:1	27 SKFdbks Comp 6:1	28 SKCompressr 12:1	29 SKCompressr 9:1	30 SKCompressr 18:1	31 HKCompressor 9:1	32 HKCompsr Inf:1
Distortion	33 Subtle DrumShape	34 Subtle Distortion	35 Dist Cab EPiano	36 Distortion +EQ	37 Super Shaper	38 2 Band Shaper	39 Shaper ->Reverb	40 Quantize +Flange QuantizLvl
Filter	41 Phunk Env Filter	42 Trip Filter	43 LFO Sweep Filter	44 Bass Env Filter	45 EPno Env Filter	46 LFO Sweep Filt2	47 DoubleRise Filter	48 Circle Bandsweep
LazerVerb	49 Cheap LaserVerb	50 Spry Young BoyFdbk	51 LaserDelay ->Rvb	52 Lazerfazer EchoesF	53 Drum Neurezonate	54 Flange ->LaserDly	55 Lazertag Flange	56 LaserVerb Loop
Misc	57 VibChor +Rotary2	58 VibChor +Rotary1	59 VC +Dist +Rotary2	60 3 Band Enhancer	61 Extrem Enhancer Hi/Md Xovr	62 3 Band Tremolo	63 Simple Panner	64 Dual Panner
Rotary Speaker			Enhancer			Simple Motion		

Reverb

	1	2	3	4	5	6	7	8
Booth	1 Nice LittleBooth	2 Viewing Booth	3 Drum Booth	4 Drum Room	5 Drum Room B	6 Natural Room	7 Small Wood Booth	8 Half Bath
Room 1	9 Add Ambience	10 SmallStudio Room	11 The Real Room	12 With A Mic	13 Pretty SmallPlace	14 Real Niceverb	15 ClassRoom	16 Big Studio Room
Room 2	17 BrightSmall Room	18 Tight Perc Room	19 Small DarkRoom	20 Bassy Room	21 Percussive Room	22 Bathroom	23 Real Room	24 Large Room
Chamber	25 Brass Chamber	26 Sax Chamber	27 Plebe Chamber	28 Live Chamber	29 Small Chamber	30 SmallDrum Chamber	31 Small Hall	32 My Garage
Hall 1	33 Sweet Hall	34 Semisweet Hall	35 Classic Chapel	36 Medium Hall	37 Ball Hall	38 Small Hall	39 Reflective Hall	40 Smooth Hall
Hall 2	41 Grandiose Hall	42 Elegant Hall	43 Bright Hall	44 Medium Hall Too	45 School Stairwell	46 Large Hall	47 Real Big Room	48 Sweet Hall
Hall 3	49 Spacious Hall	50 Opera House	51 Real Niceverb	52 Splendid Palace	53 Weighty Platey	54 Classic Plate	55 Gated Reverb	56 Gate Plate
Combi	57 Chorus SmallRoom	58 Chorus Delay Hall	59 ChorDlyRvb Lead	60 Deep ChorDly Hall	61 FlangeDelay Room	62 FlangeDelay Hall	63 Slo FlangeDly Room	64 FlangeDly BigHall

Appendix B

SP2 Program and Effect List

MIDI Controllers

	None						
0	Bank MSB	32	Bank LSB	64	Sustain	96	DataInc
1	Mod Wheel	33	Mod Wheel LSB	65	Port Switch	97	DataDec
2	Breath	34		66	Sosten	98	NRg LBS
3		35		67	Soft	99	NRg MSB
4	Foot Control	36		68	Legato	100	Rg LSB
5	Port Time	37	Port Time LSB	69	Hold2	101	Rg MSB
6	Data	38	Data LSB	70	SndCtl1	102	
7	Volume	39	Volume LSB	71	SndCtl2	103	
8	Balance	40	Balance LSB	72	SndCtl3	104	
9		41		73	SndCtl4	105	
10	Pan	42	Pan LSB	74	SndCtl5	106	
11	Expression	43	Expression LSB	75	SndCtl6	107	
12	EfxCt 1	44		76	SndCtl7	108	
13	EfxCt 2	45		77	SndCtl8	109	
14		46		78	SndCtl9	110	
15	AuxBnd2	47		79	SndCtl10	111	
16	Gen 1	48		80	Gen 5	112	
17	Gen 2	49		81	Gen 6	113	
18	Gen 3	50		82	Gen 7	114	
19	Gen 4	51		83	Gen 8	115	
20		52		84	PortCtl	116	
21	AuxBnd1 MSB	53	AuxBnd1 LSB	85		117	
22		54		86		118	
23		55		87		119	
24		56		88		120	SndOff
25		57		89		121	RstCtl
26		58		90		122	LclCtl
27		59		91	FXBWet	123	NtsOff
28		60		92		124	OmniOf
29		61		93	FXAWet	125	OmniOn
30		62		94		126	MonoOn
31		63		95		127	PolyOn

Special Controllers

SP2-series Only Message.

128	Pitch Bend	133	Tempo	138	Goto Prog	143	Seq Stop
129	Rev Bnd	134	Key Number	139	Setup Inc	144	Seq Cont
130	Pitch Up	135	Key Veloc	140	Setup Dec	145	Trans Up
131	Pitch Down	136	Prog Inc	141	Goto Setup	146	Trans Down
132	Pressure	137	Prog Dec	142	Seq Start		

Appendix C

SP2 Drum Map

The drum map defines the placement of the various percussion sounds at key locations. The MIDI data generated by key triggering (or MIDI note data received from the MIDI In port) does not contain any information about timbre. They just determine which note will sound. So, changing a drum map will change the timbre assigned to each key. Simply put, the drum map defines the placement of percussion sounds.

The SP2 supports three kinds of drum maps. Drums and percussion sounds are differently mapped in accordance with each drum map. There is an advantage in using different kinds of drum maps.

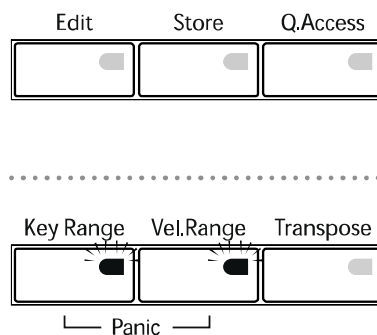
You can select either General MIDI style layout (GM) or Kurzweil style layout (KRZ) in the Global menu. Choose the layout that is most suitable for your performance style. For example, the General MIDI map is useful for playing back General MIDI format MIDI files.

The next page shows how percussion timbres are assigned to each key in each map. The left side description is the mapping for white keys and the right side is for black keys.

There are some keys unlabeled. For General MIDI style layout, they are not assigned to any timbres. For Kurzweil style layout, their timbres change on a program basis.

Panic

When you use MIDI devices, sometimes you may have MIDI note-on commands producing 'stuck' notes which drone on and on. In this case, don't "Panic". Pressing [Key Range] and [Vel Range] button will transmit All Note Off message and Reset All Controller message to shut down the unwanted stuck notes and set the SP2 back to normal. This is what "Panic" function does.



< Figure C-1 >

Normal

A 0			A# 0
B 0			
C 1			C# 1
D 1			D# 1
E 1			
F 1			
Kick 3	G 1		F# 1 Hard Snare 1
Snare 4	A 1		G# 1 Kick 3
Crash Cymbal	B 1		A# 1 Snare 4
Floor Tom	C 2		C# 2 Floor Tom
Lo Mid Tom	D 2		D# 2 Lo Mid Tom
Mid Tom	E 2		
Mid Tom	F 2		F# 2 Mid Tom
Hi Tom	G 2		G# 2 Hi Tom
Hi Tom	A 2		A# 2 Hi Tom
Kick 1	B 2		
Kick 1	C 3		C# 3 Kick 1
Kick 2	D 3		D# 3 Kick 2
Cross Stick Ambient	E 3		
Cross Stick Ambient	F 3		F# 3 Cross Stick
Snare 3	G 3		G# 3 Snare 3
Snare 2	A 3		A# 3 Snare 2
Soft Snare 1	B 3		
Dual Snare 1	C 4		C# 4 Dual Snare 1
Closed Hi-hat	D 4		D# 4 Closed Hi-hat
Closed Hi-hat	E 4		
Slightly Open Hi-hat	F 4		F# 4 Slightly Open Hi-hat
Slightly Open Hi-hat	G 4		G# 4 Open Hi-hat
Open Hi-hat	A 4		A# 4 Open/Closed Hi-hat
Open/Closed Hi-hat	B 4		
Foot Hi-hat	C 5		C# 5 Crash Cymbal
Crash Cymbal	D 5		D# 5 Crash Cymbal
Crash Cymbal	E 5		
Crash Cymbal	F 5		F# 5 Crash Cymbal
Splash Cymbal	G 5		G# 5 Ride Cymbal
Ride Cymbal Rim	A 5		A# 5 Ride Cymbal Rim/Bell
Ride Cymbal Bell	B 5		
Ride Cymbal Bell	C 6		C# 6 Cowbell
Hand Clap	D 6		D# 6 Lo Timbale/Hi Timbale
Timbale Shell	E 6		
Conga	F 6		F# 6 Hi Tumba
Conga	G 6		G# 6 Lo Tumba
Clave	A 6		A# 6 Shakers
Tambourine	B 6		
Tambourine	C 7		C# 7 Shakers
Tambourine	D 7		D# 7 Maracas
Maracas	E 7		
Lo Agogo	F 7		F# 7 Hi Agogo
Lo Bongo	G 7		G# 7 Bongo Slap
Hi Bongo	A 7		A# 7 Finger Snap
Muted Triangle	B 7		
Open Triangle	C 8		

GM ReMap

A 0			A# 0
B 0			
C 1			C# 1
D 1			D# 1
E 1			
F 1			F# 1
G 1			G# 1
Metronome Click	A 1		A# 1
Kick Drum 2	B 1		
Kick Drum 1	C 2		C# 2 Side Stick
Snare Drum 1	D 2		D# 2 Hand Clap
Snare Drum 2	E 2		
Lo Tom 2	F 2		F# 2 Closed Hi Hat
Lo Tom 1	G 2		G# 2 Pedal Hi Hat
Mid Tom 2	A 2		A# 2 Open Hi Hat
Mid Tom 1	B 2		
Hi Tom 2	C 3		C# 3 Crash Cymbal 1
Hi Tom 1	D 3		D# 3 Ride Cymbal 1
	E 3		
Ride Bell	F 3		F# 3 Tambourine
Splash Cymbal	G 3		G# 3 Cowbell
Crash Cymbal 2	A 3		A# 3
Ride Cymbal 2	B 3		
Hi Bongo	C 4		C# 4 Lo Bongo
Mute Conga	D 4		D# 4 Hi Conga
Lo Conga	E 4		
Hi Timbale	F 4		F# 4 Lo Timbale
Hi Agogo	G 4		G# 4 Lo Agogo
Cabasa	A 4		A# 4 Maracas
	B 4		
	C 5		C# 5
	D 5		D# 5 Clave
	E 5		
	F 5		F# 5
	G 5		G# 5 Triangle Mute
Triangle Open	A 5		A# 5 Shaker
	B 5		
	C 6		C# 6
	D 6		D# 6
	E 6		
	F 6		F# 6
	G 6		G# 6
	A 6		A# 6
	B 6		
	C 7		C# 7
	D 7		D# 7
	E 7		
	F 7		F# 7
	G 7		G# 7
	A 7		A# 7
	B 7		
	C 8		

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